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(54) Title: GLUTEN BIOPOLYMERS

(57) Abstract: This invention consists of a modified gluten biopolymer for use in industrial applications, such as composites and foams. In the present work, the fracture toughness of the gluten polymer was improved with the addition of a thiol-containing modifying agent. This work also resulted in the development of a gluten biopolymer-modified fiber bundle, demonstrating the potential to process fully biodegradable composite materials. Qualitative analysis suggests that a reasonably strong interface between the natural fibers and biopolymer matrix can form spontaneously under the proper conditions. Therefore this invention relates to a modified gluten biopolymer for use in industrial applications, such as composites, stabilized foams and molded articles of manufactures. The present invention relates to a new gluten based biopolymer with modified properties, such as an increase in impact strength, and prepared by using thiol-containing molecules. The multifunctional activity of the polythiol-containing molecules generates the potential for the development of a new material base for commodity plastics. The invention furthermore relates to a new composite material comprising gluten-coated fiber, its use and the method for preparing the composite material.



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